APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,401	02/27/2004	Jeffrey Wannamaker	TVW/APP52US	5238

59906   7590   01/04/2008

SYNNESVEDT & LECHNER, LLP
TVWORKS, LLC
1101 MARKET STREET
SUITE 2600
PHILADELPHIA, PA 19107

EXAMINER
DAO, THUY CHAN

ART UNIT	PAPER NUMBER
2192	

MAIL DATE	DELIVERY MODE
01/04/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

> A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _03_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
> - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
>   after SIX (6) MONTHS from the mailing date of this communication.
> - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
> - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
>   Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
>   earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☒ This action is **FINAL**.　　2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-13,16 and 18-32* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-13,16 and 18-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some *　c)☐ None of:

　　　　1.☐ Certified copies of the priority documents have been received.

　　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage

　　　　　　application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

DETAILED ACTION

1. This action is responsive to the amendment filed on October 31, 2007.

2. Claims 1, 3-13, 16, and 18-32 have been examined.

Response to Amendments

3. Per Applicants' request claims 1 and 16 have been amended.

4. The objection to drawings is withdrawn in view of Applicants' amendments.

5. The objection to the specification is withdrawn in view of Applicants' amendments.

Response to Arguments

6. Applicants' arguments have been fully considered.

a) Objections to claims 31 and 32 (Remarks, page 10):

As set forth in the previous Office action mailed July 31, 2007, page 4, paragraph 10:

> In the specification, page 5, lines 25-33 briefly discuss
> "method attribute" and "attribute table", but do not fully support
> the newly added limitations "said at least one profile parameter is
> stored as a method attribute in an attribute table".

In the Remarks, page 10, last paragraph, Applicants also recited page 5, lines 25-33 and further page 6, lines 1-8, to support the added limitations in claims 31 and 32. However, all the recited paragraphs do not fully support the specific limitations "said at least one profile parameter is stored as a method attribute in an attribute table" (emphasis added), wherein "said at least profile parameter" includes "an associated priority level above a threshold level" (e.g., recited in claim 1, lines 3-4).

Accordingly, the examiner respectfully maintains ground of objection over dependent claims 31 and 32 as further set forth in details below.

b) Claim Rejections (Remarks, pp. 11-12):

Applicants' arguments have been considered but are moot in view of the new ground(s) of rejection. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action.

Claim Objections

7. Dependent claims 31 and 32 are objected to because of minor informalities.

As recited by the Applicants, page 5: 25-33 and page 6: 1-8 of the originally filed disclosure described storing parameters "as method attributes in attribute tables ..." (Remarks, page 10, last paragraph).

However, these paragraphs do not fully support the claimed limitations "at least one profile parameter is stored as a method attribute in an attribute table" (emphasis added), wherein "said at least profile parameter" includes "an associated priority level above a threshold level" (e.g., recited in claim 1, lines 3-4).

Under the principles of compact prosecution, dependent claims 31 and 32 have been examined as the Examiner anticipates the Applicants, in the next communication with the Office, will either point out where "parameters" are - -profile parameters including an associated priority level above a threshold level- - or amend the claims to be fully supported by the originally filed disclosure.

Claim Rejections – 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 3-13, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beadle (art of record, US Patent No. 6,530,075) in view of US Patent No. 7,222,218 to Dutt et al. (art made of record, hereinafter "Dutt").

Claim 1:

Beadle discloses *a tool for processing a p-code file, comprising:*

analyzing p-code methods to be compiled within said p-code file (e.g., FIG. 8, col.8: 61 – col.9: 10, analyzing p-code methods to be compiled within a p-code file; col.6: 24-52, said a p-code file as a main program; col.4: 16-24; col.7: 57 – col.8: 21);

identifying one or more p-code methods (e.g., FIG. 8, blocks 814-824, identifying 818 Compile Again?YES/NO, 822 setJITEnabled to TRUE; col.8: 12-21, identifying those p-code methods after rerunning a number of times depending on performance thresholds)

at least one profile parameter (e.g., FIG. 8, parameter COUNTER, col.8; 61-65; col.9: 11-27);

an associated priority level (e.g., FIG. 8, block 820-822, an associated priority level as the boolean ALLOWED with two levels: first level (priority level 0) as ALLOWED = FALSE and not Set JIT enable and second level (priority level 1) as ALLOWED = TRUE and set JIT enable, col.9; 28-39; col.7: 65 – col.8: 12);

identifying one or more p-code methods that have a least one profile parameter including an associated priority level above a threshold level (e.g., FIG. 8, block 816, profile parameter COUNTER > threshold /YES → block 820, the associated priority level ALLOWED = TRUE (priority level 1) → block 822, JIT enable (TRUE), col.9: 28-51; col.8: 6-21).

annotating said identified p-code methods to be compiled to enable preferential processing of said p-code file based on said associated priority level of each identified p-code methods (e.g., blocks 820-822, annotating set JIT enable (boolean ALLOWED) → setJITEnabled(TRUE), col.9: 28-66, so that said identified p-code methods will be just-in-time compiled by a JIT compiler 410 in FIG. 4); and

FIG. 6, col.7-38 – col.8: 1-21, annotating said identified p-code methods by a performance analysis method to be JITEnabled()).

Beadle discloses priority levels as setJITEnabled(FALSE) and setJITEnabled (TRUE), but does not explicitly disclose priority as "to be compiled in a prioritized order".

However, in an analogous art, Dutt further discloses:

annotating said identified p-code methods (e.g., col.19: 21-59; FIG. 1, Automated Code Marker 103, Marked Code 102, col.5: 41-66 and col.6: 3-52)

to be compiled in a prioritized order to enable preferential processing of said p-code file based on said associated priority level of each identified p-code methods (e.g., FIG. 1, Initial Sequential Code 100, col.3: 22 – col.4: 50; Concurrent Code 104 → Scheduling and Running Concurrent Code 107 and 106, col.10: 43 – col.11: 23; col.12: 39-56; col.15: 28 – col.16: 36, emphasis added).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to combine Dutt's teaching into Beadle's teaching. One would have been motivated to do so to schedule a plurality of blocks of concurrent code for multi-threaded execution as suggested by Dutt (e.g., col.1: 61 – col.2: 37).

Claim 3:

The rejection of claim 1 is incorporated. Beadle also discloses *said p-code file comprises an application file for processing by a virtual machine (VM) just-in-time (JIT) compiler* (e.g., col.6: 24-62).

Claim 4:

The rejection of claim 1 is incorporated. Beadle also discloses *said annotations are provided in-line with said identified p-code methods* (e.g., col.5: 25-36).

Claim 5:

The rejection of claim 1 is incorporated. Beadle also discloses *said annotations are provided as a separate file* (e.g., FIG. 4, said annotations based on information in Data Structure 408, col.6: 24-36).

Claim 6:

The rejection of claim 1 is incorporated. Beadle also discloses *at least one profile parameter comprises at least one of a method execution time, a frequency of method invocation, a number of instructions and a use of loop structures* (e.g., col.5: 30-36).

Claim 7:

The rejection of claim 1 is incorporated. Beadle also discloses *said at least one profile parameter comprises at least one of an execution time parameter, an input/output utilization parameter and a processor utilization parameter* (e.g., FIG. 7, col.8: 22-53).

Claim 8:

The rejection of claim 1 is incorporated. Beadle also discloses *said analyzing comprises identifying at least one of a static profile parameter and a dynamic profile parameter* (e.g., col.5: 4-26; col.8: 28-42).

Claim 9:

The rejection of claim 1 is incorporated. Beadle also discloses *said annotation comprises setting a normally unused bit within a method access flag field of an identified class file* (e.g., FIG. 6, col.7: 38-64).

Claim 10:

The rejection of claim 1 is incorporated. Beadle also discloses *said annotation comprises selectively setting each of a plurality of normally unused bits within a method access flag field of an identified class file, wherein said unused bits are selectively set to define thereby a priority level of a respective annotated method* (e.g., col.7: 57 – col.8: 21).

Claim 11:

The rejection of claim 3 is incorporated. Beadle also discloses *each identified byte-code portion of said application is associated with one of a plurality of priority*

levels, said annotation being indicative of respective priority levels (e.g., FIG. 8, blocks 814-816; col.9: 1-27).

Claim 12:

The rejection of claim 3 is incorporated. Beadle also discloses *selectively pre-compiling at least a portion of said application file* (e.g., col.5; 59-65).

Claim 13:

The rejection of claim 12 is incorporated. Beadle also discloses *said precompiled portion of said application file is included within a virtual machine* (e.g., FIG. 4, block 400, col.6: 24-36).

Claim 31:

The rejection of claim 1 is incorporated. Beadle also discloses *said at least one profile parameter is stored as a method attribute in an attribute table* (e.g., col.4: 53-64).

10. Claims 16, 18-30, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beadle in view of Dutt, and further in view of Wu (art of record, US Patent Publication No. 2004/0221272 A1).

Claim 16:

Beadle discloses *a method of adapting the interpretation of a p-code method within a p-code file by a virtual machine (VM), comprising:*

identifying one or more p-code methods that have at least one profile parameter including an associated priority level above a threshold level (e.g., col.8: 61-65; col. 9: 28-51; col.8: 6-21);

compiling p-code methods within a p-code file in a prioritized manner (e.g., FIG. 6, col.8: 1-21, blocks 612-614 setting priority, blocks 604-606 setting non-priority; FIG. 8, col.8: 61 – col.9: 10, different priority levels in block 818 Compile

Again?YES/NO, block 820-822, setting ALLOWED = TRUE and JITEnabled() to priority
TRUE; col.5: 38-66)

> *associated with compilation priority indicative annotation* (e.g., FIGs. 5A-B,
col.6: 53 – col.7: 18; col.5: 3-51); *and*

> *storing said compiled p-code methods in a cache* (e.g. col.5: 19-22).

Beadle discloses priority levels as setJITEnabled(FALSE) and setJITEnabled
(TRUE), but does not explicitly disclose priority as "to be compiled in a prioritized order".

However, in an analogous art, Dutt further discloses:

> *annotating said identified p-code methods* (e.g., col.19: 21-59; FIG. 1,
Automated Code Marker 103, Marked Code 102, col.5: 41-66 and col.6: 3-52)

> *to be compiled in a prioritized order to enable preferential processing of
said p-code file based on said associated priority level of each identified p-code
methods* (e.g., FIG. 1, Initial Sequential Code 100, col.3: 22 – col.4: 50; Concurrent
Code 104 → Scheduling and Running Concurrent Code 107 and 106, col.10: 43 –
col.11: 23; col.12: 39-56; col.15: 28 – col.16: 36).

It would have been obvious to a person having ordinary skill in the art at the time
the invention was made to combine Dutt's teaching into Beadle's teaching. One would
have been motivated to do so to schedule a plurality of blocks of concurrent code for
multi-threaded execution as suggested by Dutt (e.g., col.1: 61 – col.2: 37).

Neither Beadle nor Dutt explicitly discloses *[storing said compiled p-code
methods in a cache] for subsequent execution in place of corresponding interpreted p-
code methods.*

However, in an analogous art, Wu further discloses *[storing said compiled p-code
methods in a cache] for subsequent execution in place of corresponding interpreted p-
code methods* (e.g., page 2, [0027-0028]).

It would have been obvious to a person having ordinary skill in the art at the time
the invention was made to combine Wu's teaching into Beadle and Dutt's teaching.
One would have been motivated to do so to re-use native code associated with a

previously compiled method by a JIT in-memory cache as suggested by Wu (e.g., [0027-0028]).

Claims 18-20:

Claims 18-20 recite the same limitations as those of claims 3-5, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claims, it also teaches all of the limitations of claims 18-20.

Claim 21:

The rejection of claim 16 is incorporated. Beadle also discloses *in response to cache memory utilization above a threshold level, prioritizing the contents of said cache memory* (e.g., FIG. 8, block 822, col.9: 30-39).

Claim 22:

The rejection of claim 21 is incorporated. Beadle also discloses *said cache memory contents are prioritized by deleting from said cache compiled code associated with a least recently executed method* (e.g., FIG. 6, blocks 604 and 612, col.7: 45-50 and 65-67).

Claim 23:

The rejection of claim 21 is incorporated. Beadle also discloses *said cache memory contents are prioritized by deleting from said cache compiled code associated with a previously compiled method having a lower priority level than a presently compiled method* (e.g., col.9: 30-39).

Claim 24:

The rejection of claim 20 is incorporated. Beadle also discloses *compiled byte-code stored in said cache is accessed via a cache map, said cache map being updated in response to a change in cache utilization* (e.g., col.6: 24-52).

Claim 25:

The rejection of claim 18 is incorporated. Beadle also discloses *compiling non-annotated byte-code within said application if said non-annotated byte-code utilizes virtual machine resources beyond a threshold level* (e.g., FIG. 8, block 818, col.9: 21-27).

Claim 26:

The rejection of claim 25 is incorporated. Beadle also discloses *said compiled non-annotated byte-code is assigned a priority level in accordance with said utilized virtual machine resources* (e.g., col.9: 1-27).

Claim 27:

The rejection of claim 26 is incorporated. Beadle also discloses *said priority level of said annotated byte-code is further adapted in accordance with said utilized virtual machine resources* (e.g., col.8: 22-53).

Claim 28:

The rejection of claim 20 is incorporated. Beadle also discloses *said compiled annotated byte-code is assigned a priority level in accordance with said utilized virtual machine resources* (e.g., col.8: 61-67).

Claim 29:

The rejection of claim 28 is incorporated. Beadle also discloses *said priority level of said annotated byte-code is further adapted in accordance with said utilized virtual machine resources* (e.g., col.8: 22-53).

Claim 30:

The rejection of claim 26 is incorporated. Beadle also discloses *said virtual machine resources comprise at least one of an execution time parameter, an*

input/output utilization parameter and a processor utilization parameter (e.g., col.8: 22-53).

Claim 32:

Claim 32 recites the same limitations as those of claim 31, wherein all claimed limitations have been addressed and/or set forth above. Therefore, as the reference teaches all of the limitations of the above claim, it also teaches all of the limitations of claims 32.

Conclusion

11. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication should be directed to examiner Thuy Dao (Twee), whose telephone is (571) 272 8570. The examiner can normally be reached on every Tuesday, Thursday, and Friday from 6:00AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam, can be reached at (571) 272 3695.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273 8300.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is (571) 272 2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T. Dao

TUAN DAM
SUPERVISORY PATENT EXAMINER